



# IFN653

## Business Process Automation

Part A: Modelling a Loan Application Process

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### **Group 6**

*Muhammad Abdullah Chaudhry (10464603)*

*Nathan Edwards (11657464)*

*Kavya Kore (10840371)*

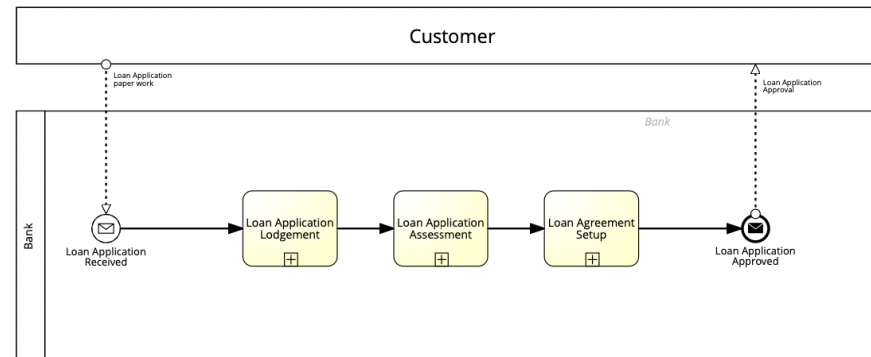
*Diana Salazar Fragozo (9239715)*

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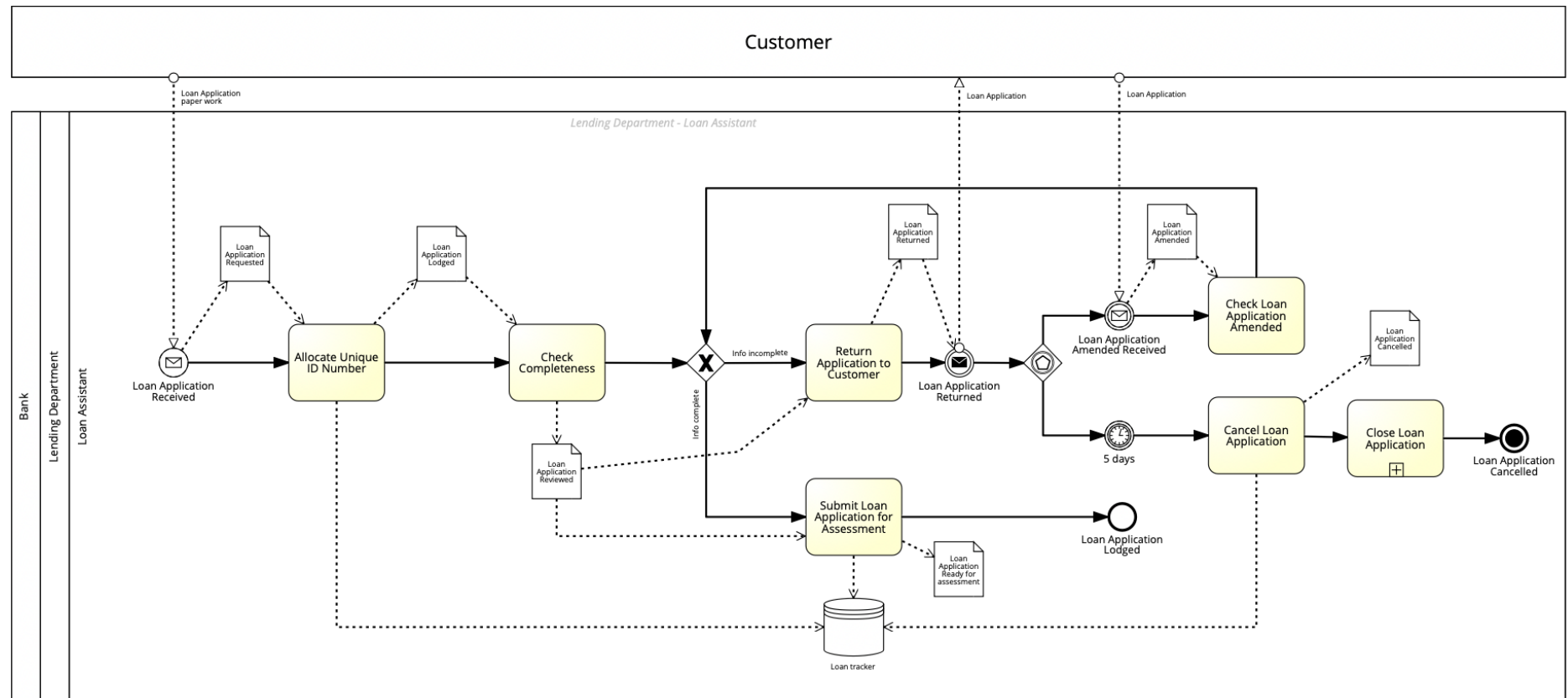
# Process Model Graphical Representation

## 1. Loan Application Process

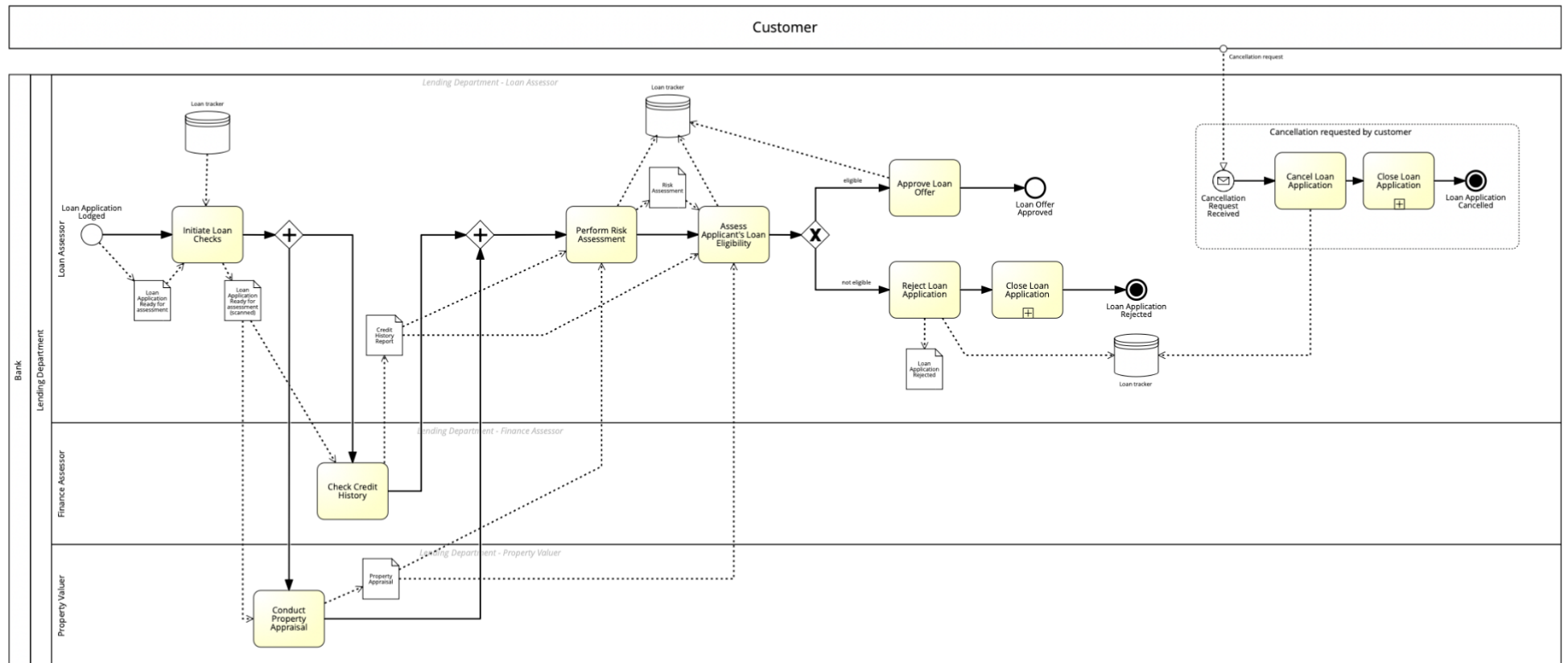




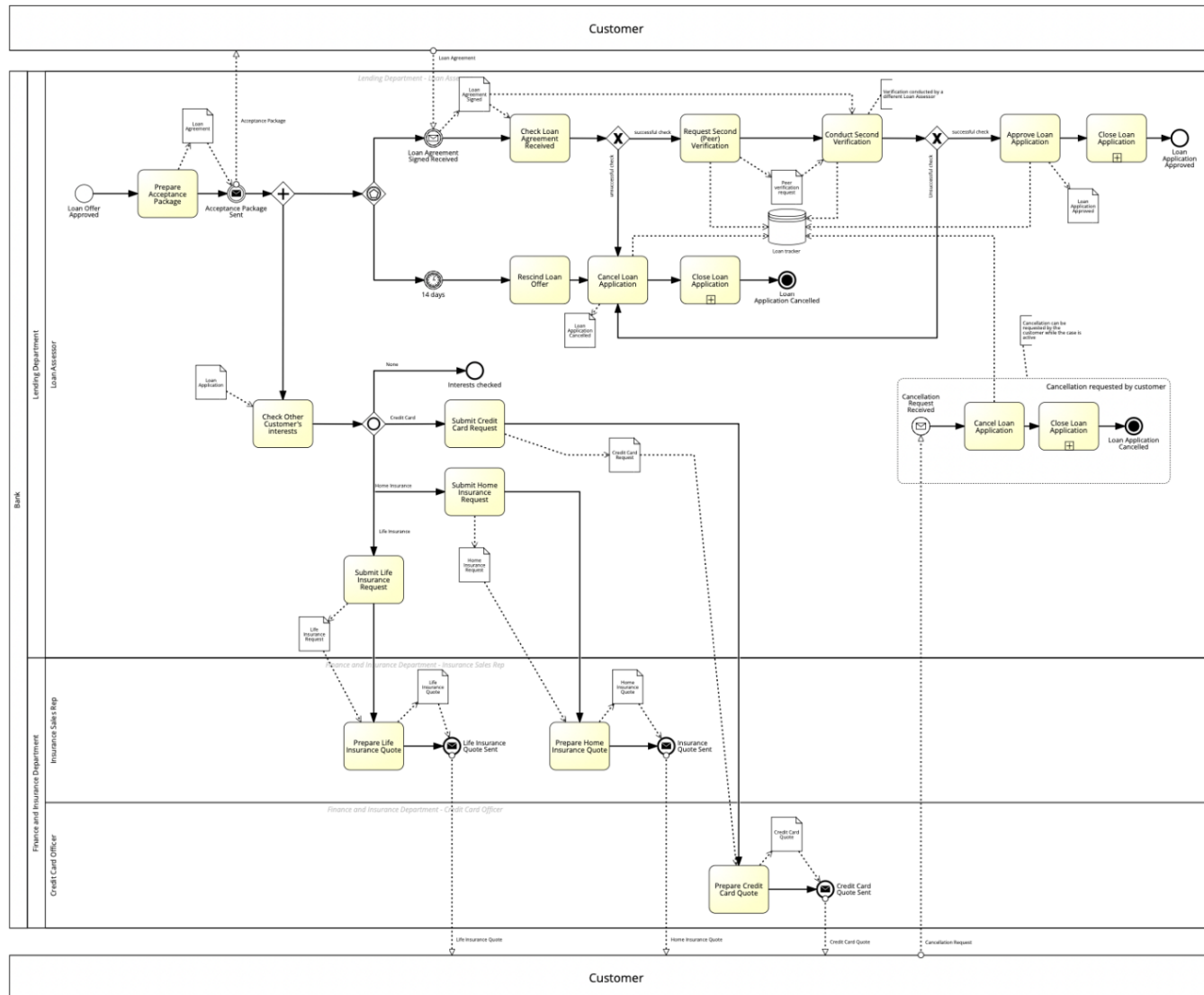
## 1.1. Loan Application Lodgement



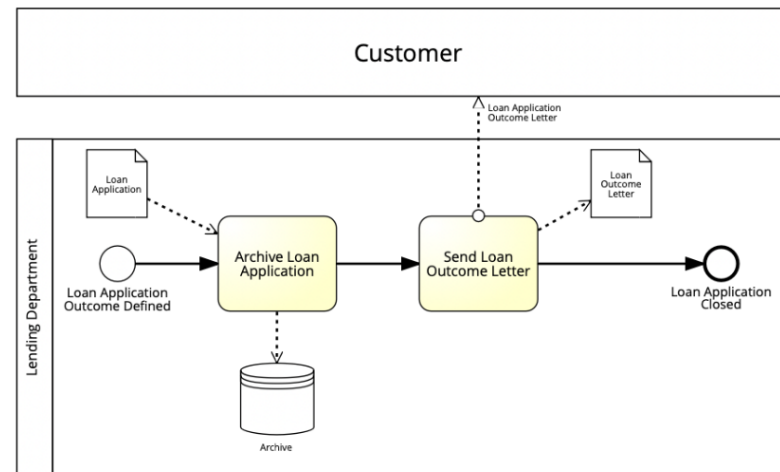
## 1.2. Loan Application Assessment



## 1.3. Loan Agreement Setup



## Subprocess: Close Loan Application



## Process Model Assumptions

- **Interactions:** Customer-organisation interactions are paper-based.
- **Loan Application Start:** Process begins with Loan Application allocation to Loan Assistant via direct message from customer; initial internal allocation to Loan Assistant has been omitted for simplicity.
- **Unique Application ID:** Loan Assistants manually assign a unique ID to each loan application, which remains constant throughout the application's lifecycle.
- **Loan Tracker:** An Excel sheet is shared among bank process participants for recording application details and updates. It records actions taken and application updates, including details like application ID, status (e.g., open, returned to customer, in assessment, in agreement, peer review, closed), outcome (e.g., approved, rejected, cancelled), and the current officer handling the application.
- **Internal Communication:** Process participants communicate via corporate email. Loan applications physically move between Loan Assistant and Loan Assessor roles, but scanned versions are shared with the Finance Officer and Property Valuer during assessment.
- **Rejection and Cancellation:** Even though both result in unapproved outcomes, Rejection and Cancellation are treated as separate tasks in the model.
- **Cancellation Handling:** Cancellation of a loan application can be initiated by either a Loan Assistant or Loan Assessor, depending on the active case. Customer-requested cancellations are considered during the case's active phase, defined from Loan Assistant submission to Loan Assessor until the final outcome is given (approval, cancellation, rejection).

## Process Semantics

The loan assessment process begins when an applicant completes and submits a loan application. It is the role of the Loan Assistant to provide the application with a unique identification number and check the application for completeness. If the application is incomplete, it is returned to the applicant by mail. The applicant has 5 working days to return an amended application, otherwise the application is cancelled. If the amended application is returned within 5 working days, the application is checked for completeness. If the application is complete, it is assigned to a Loans Assessor, and the application is lodged.

The assigned Loans Assessor initiates a property appraisal (completed by the Property Valuer) and credit history report (completed by the Finance Assessor). This information allows the Loans Assessor to perform a risk assessment, which then allows the applicant's loan eligibility to be assessed. If the risk is too high, the applicant is not eligible for a loan, and the application is rejected. If the risk is sufficient, the applicant has the loan application approved.

The Loan Assessor then prepares an acceptance package and sends it to the applicant. The applicant is sent an acceptance package which includes a loan repayment agreement. At this point, the loan application is checked to determine if they are interested in other insurance quotes. A Finance Officer will compile a credit card quotation, while an Insurance Sales Representative will assemble quotations for Home Insurance and/or Life Insurance, depending on the selections made prior to the application's submission. Any quotes generated are sent to the customer.



Upon receiving the loan agreement applicant is responsible for reading, signing and returning the repayment agreement within 14 days, otherwise the offer is rescinded and the assigned Loans Assessor cancels the application. By signing and returning documents, the applicant is agreeing to the repayment schedule and loan conditions. If the repayment agreement is returned within 14 days, but not signed, the application is cancelled by the Loans Assessor. A signed repayment agreement, returned within 14 days, allows the assigned Loans Assessor to forward the application to a second Loans Assessor (peer) who verifies that all processes, assessment and decisions have been performed correctly. The second Loans Assessor can validate the application, upon which it is approved, or if they deem the application invalid, the application is cancelled.

For all outcomes of the application (approved, rejected or cancelled), the applicant is informed, and the application is archived. The applicant has the right to cancel the application, at any time, by informing the assigned Loans Assessor.

## Data Objects

| Data Object           | Assumed Content   |
|-----------------------|---|
| Loan Application      | Applicant Name<br>Applicant Address<br>Applicant Contact Details<br>Application Identification Number ( <i>Office Use Only</i> )<br>Life Insurance request<br>Home Insurance request<br>Credit Card request<br>Loan Amount<br>Business Terms and Conditions<br>Applicant Signature<br>Application Progress / Application Outcome ( <i>Office Use Only</i> ) |
| Loan Outcome Letter   | Application Identification Number<br>Applicant Name<br>Loan Amount<br>Loan Outcome/Decision   |
| Credit History Report | Application Identification Number<br>Applicant Name<br>Loan Amount<br>Details of Credit History<br>Credit History Score<br>Signature of Finance Assessor  |
| Property Appraisal    | Application Identification Number<br>Applicant Name<br>Loan Amount<br>Appraised Value of Property<br>Details of Appraisal<br>Signature of Property Valuer   |
| Risk Assessment       | Application Identification Number<br>Calculated Risk Weighting  |

|                           |   |
|---------------------------|---|
|                           | Credit History Report results<br>Property Appraisal results<br>Applicant Loan Eligibility   |
| Credit Card Request       | Application Identification Number<br>Applicant Name<br>Applicant Address<br>Applicant Contact Details<br>Name of Assigned Loans Assessor  |
| Life Insurance Request    | Application Identification Number<br>Applicant Name<br>Applicant Address<br>Applicant Contact Details<br>Name of Assigned Loans Assessor  |
| Home Insurance Request    | Application Identification Number<br>Applicant Name<br>Applicant Address<br>Applicant Contact Details<br>Name of Assigned Loans Assessor  |
| Loan Agreement            | Application Identification Number<br>Applicant Name<br>Loan Amount<br>Monthly Repayment Amount<br>Repayment Schedule<br>Repayment Details<br>Terms and Conditions of Loan<br>Applicant Agreement<br>Applicant Signature |
| Peer Verification Request | Application Identification Number<br>Name of Assigned Loans Assessor<br>Name of Peer (Loan Assessor)<br>Date of Request<br>Outcome of Request   |

## Automation Appraisal

The loan application process described presents several areas where it can benefit significantly from automation, propelling the enhancement of overall operational efficiency. This automation would result in reduced process cycles, optimised resource allocation, manual error mitigation, and an enhanced experience for both customers and internal process participants. Below an evaluation of the potential enhancements and advantages:

### 1. Online Smart Form and Digital Submission

Automation of the submission process through a user-friendly smart form presents a dual advantage. Firstly, it eliminates the need for applicants to print and physically submit applications. Secondly, the smart form can enforce mandatory fields and format validations, ensuring accurate and comprehensive data capture.

## Benefits

1. Enhanced process efficiency due to elimination of postal delays and manual data entry errors.
2. Expedited Loan Application Lodgement subprocess, reducing delays and rework. This subprocess (refer to the BPMN process model) executed by the Loan Assistant may no longer be required.
3. Elevated customer experience through simplified application submission.

## Challenge

Consideration required for accommodating non-tech-savvy and impaired individuals who may prefer/need paper-based submissions. Market analysis is crucial to determine whether this should be integrated into the primary process or treated as a contingency.

## 2. Automated Case Management Workflow for Internal Application Handling

Implementation of an end-to-end workflow for internal stakeholders brings multifaceted improvements:

- **Online Smart-Form Integration:** Each application submitted online triggers a new loan application case for assessment.
- **Automated Application Assignment:** Each case receives a unique, unchangeable identification number.
- **Automated Eligibility Assessment:** An automated eligibility assessment algorithm, integrated with the workflow, could analyse application data, credit reports, property appraisals, and risk calculations simultaneously, without the need for human intervention.
- **Digital Document Handling:** The case management system could allow the loan assessor to send a digital version of acceptance packages to the applicants. E-signatures could also be integrated for quicker acceptance.
- **Automated Verification Checks:** Automation could validate repayment agreement and terms and conditions acceptance and loan conditions, reducing the risk of missed steps.
- **Parallel Processing of Additional Services:** Generation of home and life insurance and credit card quotes (or quotes requests to the relevant areas), based on applicant preferences, could happen automatically and concurrently with the loan assessment. This enhances cross-selling opportunities without delaying the primary loan process.
- **Real-time Notifications/Letters:** An automated system could notify applicants immediately about the application status, additional service offerings and any update on the case, providing them with an opportunity to be informed of the process without having the need to spend their time and the bank resources time in tracking activities. Also, formal letter with the outcome of the application can be automatically generated and sent to customers.
- **Self-Service Portal Integration:** Case management system could be integrated with a self-service portal available for customers to track the case proactively or to request a loan cancellation provided that the case is under a status that allows cancellation by customer.
- **Digital Archival:** Automated digital archival of applications simplifies record-keeping and aligns with compliance needs.

## Benefits

1. Substantial reduction in manual workloads for Loan Assessors.
2. Accelerated loan assessment due to automated checks, minimising rework. There is no need for peer verification and manual credit history and property value checks.
3. Faster, accurate, and objective eligibility evaluations of applications.
4. Cost reduction associated with printing and posting communications to customers, i.e. acceptance packages and outcome letters. This reduces the process time cycle as well.

5. Empowerment of applicants through self-service capabilities, which in turn reduces bank employees' workload.
6. Overall process increased productivity: more applications can be processed in the same time frame.
7. Enhanced end-to-end customer experience, amplifying customer satisfaction and bank reputation.

In conclusion, automating the loan application process by implementing all or some of the features above mentioned presents an immense potential to enhance efficiency and productivity, reduces processing times, minimises errors, and improves the overall customer experience. By leveraging technology to streamline tasks, eliminate manual intervention, and provide real-time updates, the bank can optimise its operations and stay competitive in a rapidly evolving financial landscape.

## Candidates for Automation

Throughout the process model, four tasks have been recognised as suitable contenders for separate task automation. These selections were made based on assessments of complexity and practicality. The forthcoming subsections will delineate the methods through which automation could be implemented for each task, alongside the underlying assumptions for these approaches.

## Assigning Unique Identification Numbers to Applications

### **Description**

Business Process Management Systems (BPMS) has the capability to streamline the process of assigning distinct identification numbers to applications by automatically generating and allocating numbers as soon as an application is submitted. This removes the necessity for a manual intervention from a loan assistant to designate an identification number for each application. The BPMS carries out this process by creating a distinctive identification number for every application and then seamlessly attaching it to the respective application. By doing so, not only does it save valuable time, but also guarantees that each application possesses a unique identifier, preventing any duplication.

To achieve this automation, a script task is employed, which operates within the framework of referential integrity and adheres to an incremental algorithm. This ensures that the generated identification numbers are consistent and follow a systematic progression, maintaining accuracy and reliability throughout the process. As a result, the entire procedure becomes efficient, accurate, and self-sustaining, enhancing the overall efficiency of the application management workflow.

### **Assumptions**

Initially, it is assumed that the BPMS will have the capacity to create distinct identification numbers for every individual application (and adequately verify this to guarantee exclusivity). Secondly, the BPMS will possess the capability to automatically affix the identification number to the application and guarantee its permanent association with it (meaning the application will not be able to become separated from its assigned ID under any circumstances). Lastly, the bank will have the flexibility to modify their procedures to effectively integrate and utilise this automated capability.

## Ensuring Application Completeness: Validation for Missing Information

### Description

To automate the task of checking loan applications for completeness and missing information, a digital validation system can be implemented. An automated solution would involve predefined validation rules that analyse the submitted application data. The system assumes that applicants input their information through an online form and that the validation rules are well-defined and programmed into the system. This approach ensures that applications are promptly reviewed for accuracy and completeness, minimising manual intervention and potential errors in the process.

### Assumptions

Key assumptions include having standardised data entry formats, predefined validation criteria, and the availability of integrated software capable of identifying missing or incorrect information. This automated approach ensures consistent and efficient application processing, reducing human error and processing time.

## Utilising Mobile Notifications Instead of Posting Letters

### Description

Converting the manual process of sending letters to an automated task involves implementing a notification system. When an application's status changes (approved, rejected, cancelled), an automated task can trigger a mobile notification to the customer, in addition to an automatic loan application letter that is emailed to the applicant. The system assumes that customer contact details are collected during the application process, and an integration with a notification service (e.g., SMS, email, mobile app push notifications) is established. The notification will inform the customer about the outcome and potentially provide further instructions.

### Assumptions

The successful execution of this automation relies on several assumptions: a well-established digital infrastructure with a reliable mobile app, widespread availability of smartphones among stakeholders, the implementation of a secure and tailored notification system, adherence to legal and regulatory guidelines, comprehensive user training, incorporation of tracking mechanisms for message confirmation, a solid emergency communication plan, mechanisms for recipient feedback, a carefully planned transition strategy, a positive cost analysis, and an enduring commitment to continuous process enhancement.

## Automating Agreement and Terms Signing: Transitioning from Manual Printing and Mailing

### Description

To automate the signing of agreements and terms and conditions, the current manual process of printing and sending documents via post can be streamlined by implementing an electronic signature solution. Through an automated system, applicants would receive electronic documents via email or a secure online platform. The system would integrate with electronic signature services, allowing applicants to review and digitally sign documents online.

**Assumptions**

Assumptions for this automation include the availability of a secure online platform, applicant willingness and ability to use electronic signatures, and integration with reliable electronic signature providers. The system assumes that applicants have access to electronic devices for reviewing and signing, and an established electronic signature service is integrated to ensure security and legality. This transition would eliminate the need for physical documents, expedite the signing process, and enhance overall efficiency, leading to faster turnaround times and reduced administrative efforts.

# Appendices

## Appendix 1 - Declaration

By submitting this assignment, we are aware of the University rule that a student must not act in a manner that constitutes academic dishonesty, as stated and explained in the QUT Manual of Policies and Procedures. We confirm that this work represents our team's effort, we viewed the final version, and it does not contain plagiarised material.

| <b>Name</b>                | <b>Student Number</b> | <b>Signature</b> |
|----------------------------|-----------------------|------------------|
| Muhammad Abdullah Chaudhry | 10464603              | MAC              |
| Nathan Edwards             | 11657464              | NE               |
| Kavya Kore                 | 10840371              | KK               |
| Diana Salazar Fragozo      | 9239715               | DPS              |